

**Claims**

1. A positioning system for determining angular position of a vehicle with respect to a predetermined position, the system comprising at least one beacon whose position relative to the predetermined position is known, for generating at least one beam of known optical characteristic that allows deriving of the angular position.

2. The system of claim 1, wherein said at least one beam of known optical characteristic comprises laser radiation.

3. The system of claim 1, wherein said at least one beam of known optical characteristic scans a predetermined sector.

4. The system of claim 3, wherein said at least one beam of known optical characteristic scans a predetermined sector back and forth.

5. The system of claim 3, wherein said at least one beam of known optical characteristic comprises two beams, that scan a predetermined sector about the beacon in opposite directions.

6. The system of claim 4, wherein the two beams are synchronized to overlap each other at predetermined angle in the scanned sector.

7. The system of claim 1, wherein said at least one beam is static.

8. The system of claim 1, wherein said characteristic comprises predetermined wavelength.

9. The system of claim 1, wherein said characteristic comprises predetermined polarization.

10. The system of claim 1, wherein said characteristic comprises predetermined intensity.

11. The system of claim 1, wherein said characteristic comprises amplitude modulation frequency.

5 12. The system of claim 1, wherein said characteristic comprises amplitude modulation contrast.

13. An automated positioning system for determining the angular position of a vehicle with respect to a known position, using at least one beacon whose position  
10 relative to the predetermined position is known, for generating at least one beam of known optical characteristic that allows deriving of the angular position, the system comprising:

at least one electro-optical sensor for detecting said at least one beam and optical characteristics; and

15 a logic circuitry onboard the vehicle for computing the angular position of the vehicle with respect to the predetermined position.

14. The system of claim 13, wherein the logic circuitry comprises a processor.

20 15. The system of claim 13, wherein the logic circuitry comprises logic electronic elements.

16. The system of claim 13, wherein said at least one electro-optical sensor comprises two sensors.

25

17. The system of claim 13, wherein said at least one electro-optical sensor comprises an array of sensors.

18. The system of claim 13, wherein said at least one electro-optical sensor is  
30 provided with a filter.

19. The system of claim 18, wherein said filter is a polarizing filter.

20. The system of claim 18, wherein said filter is a wavelength filter.

5 21. The system of claim 13, wherein the logic circuitry further generates control commands for controlling the maneuvering actuators of the vehicle.

22. The system of claim 13, wherein the vehicle comprises an unmanned aerial vehicle.

10

23. The system of claim 13, wherein the vehicle comprises a naval vessel.

24. The system of claim 13, wherein the vehicle comprises a land vehicle.

15 25. A method for determining angular position of a vehicle with respect to a predetermined position, the method comprising:

providing at least one beacon whose position relative to the predetermined position is known, for generating at least one beam of known optical characteristic that allows deriving of the angular position;

20 detecting said at least one beam using at least one sensor coupled to the vehicle and optical characteristic;

using a logic circuitry onboard the vehicle connected to said at least one electro-optical sensor, deriving the angular position of the vehicle with respect to the predetermined position.

25

26. The method of claim 25, wherein said at least one beam is static.

27. The method of claim 25, wherein said at least one beam is scanning.

30 28. The method of claim 27, wherein two beams are generated, and wherein the characteristics of the two beams comprises the timings of detection by said at least one electro-optical sensor.

29. The method of claim 25, wherein said characteristic comprises predetermined wavelength.

30. The method of claim 25, wherein said characteristic comprises predetermined polarization.

31. The method of claim 25, wherein said characteristic comprises predetermined intensity.

32. The method of claim 25, wherein said characteristic comprises amplitude modulation frequency.

33. The method of claim 24, wherein said characteristic comprises amplitude modulation contrast.

34. An automated method for determining the angular position of a vehicle with respect to a known position, using at least one beacon whose position relative to the predetermined position is known, for generating at least one beam of known optical characteristic that allows deriving of the angular position, the method comprising:  
providing at least one electro-optical sensor for detecting said at least one beam and optical characteristic;  
deriving using a logic circuitry onboard the vehicle, the logic circuitry connected to said at least one electro-optical sensor, the angular position of the vehicle with respect to the predetermined position.

35. The method of claim 34, wherein said at least one electro-optical sensor comprises two sensors.

36. The method of claim 34, wherein said at least one electro-optical sensor comprises an array of sensors.

37. The method of claim 34, wherein said at least one electro-optical sensor is provided with a filter.

38. The method of claim 37, wherein said filter is a polarizing filter.

39. The method of claim 37, wherein said filter is a wavelength filter.